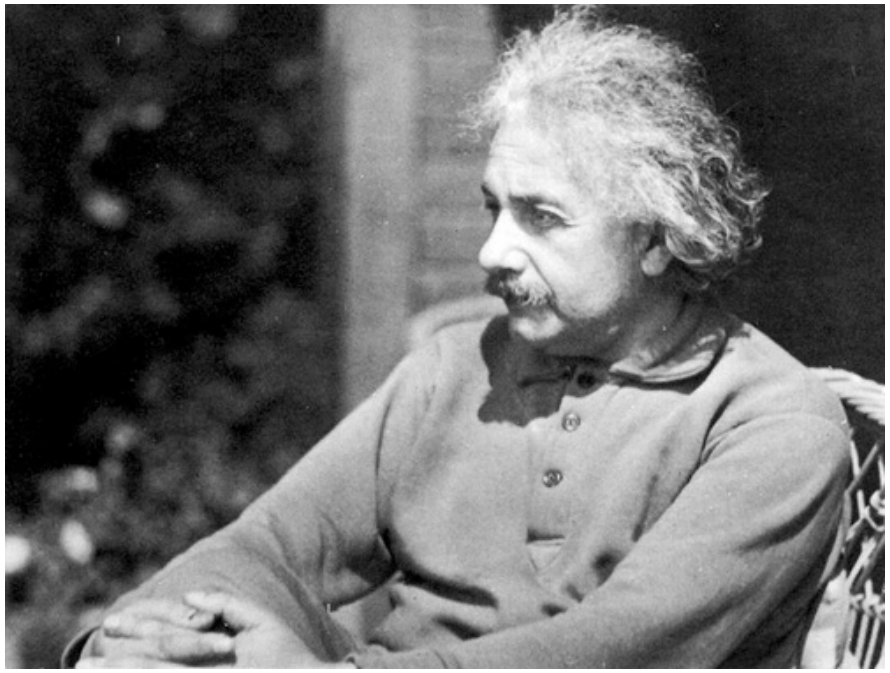


Happy Birthday!

Run-6 Status

Abhay Deshpande

Stony Brook & RBRC

Time and Scheduling Meeting(s)

March 14, 2006

Run-6 Startup

- PHENIX has followed RHIC very closely
  - **Run-6 first collisions, Feb. 23, PHENIX recorded them**
  - **Run-6 first polarization measured Feb.24, PHENIX saw it with its local polarimeter**
  - **Run-6 declared March 5th 8:35PM, within an hour PHENIX saw and confirmed collisions of radially polarized protons**

- Since then PHENIX has been operating in data taking mode
  - **Taking regular calibrations, zero field runs for alignment**
  - **Doing online and (fraction of data) being analyzed by offline**
  - **Generally debugging the entire operations**

- Shifts at PHENIX started February 7 for HV and flammable gas, and February 23 for actual data taking with the normal 5 people on shift
  - **PHENIX declared Physics Data taking at 0:00 on March 8, 2006**

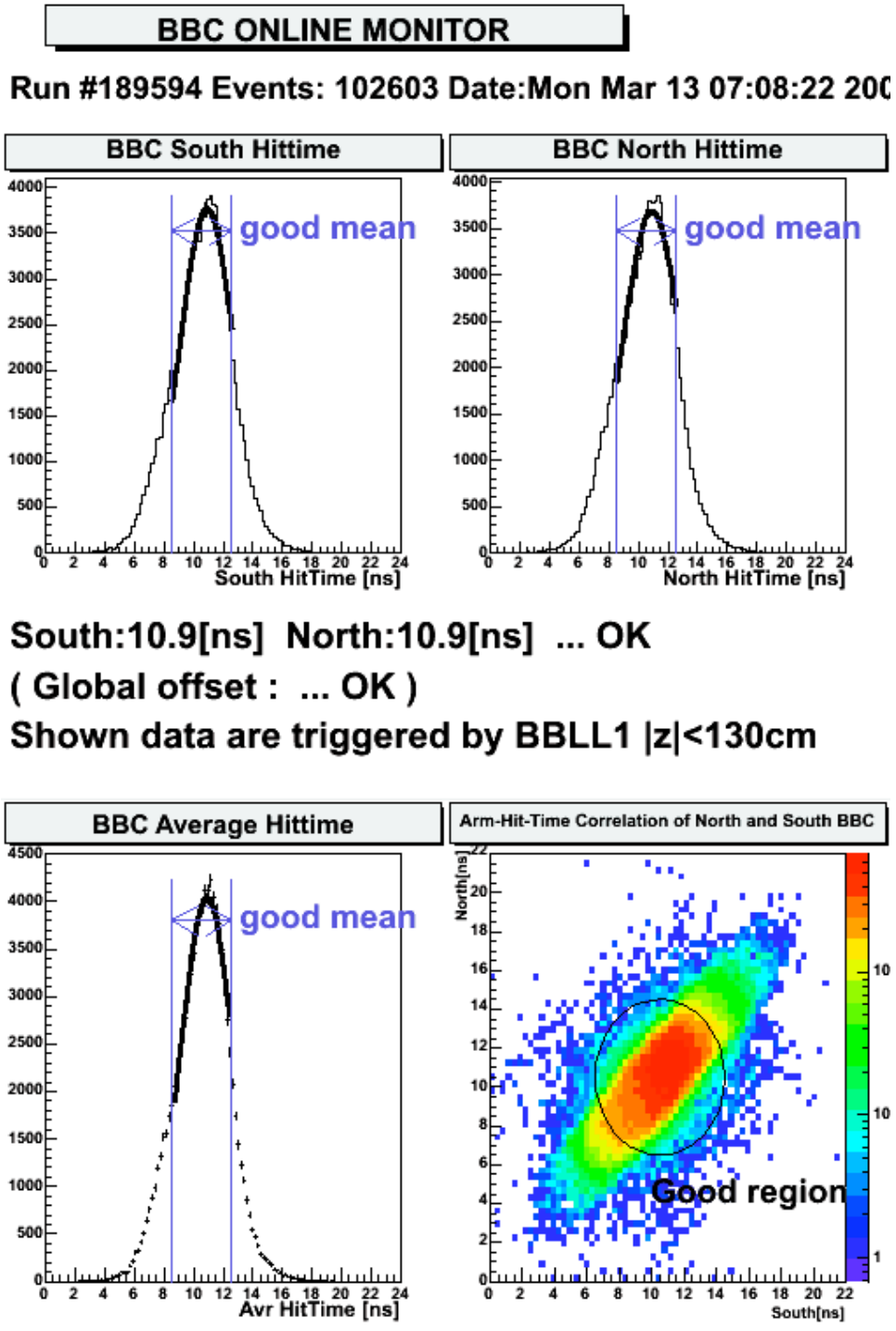
A quick reminder

Physics Goals for Run-6:

- 200 GeV CM radially polarized pp collisions with **50-60% beam polarization** , 4 weeks of operation or 4-7 pb^{-1}, which ever **comes first** => **FOM = P^2L = 1.21**
- 200 GeV CM Longitudinally Polarized pp collisions with **60% beam polarization**, 6-7 weeks of operation, **4 times** better FOM for Run-5 => **FOM = P^4L = 0.58 => L_{min} = 4.5 pb^{-1}**
- 62.4 GeV CM transversely polarized protons with **60% polarization**, 2 weeks or 0.6 pb^{-1}
- 22 GeV CM proton-proton collisions 0.4 nb-1 or 3 days (max)
- 500 GeV CM proton-proton collisions (tranverse and longitudinal) for machine development and trigger & background studies in the experiment

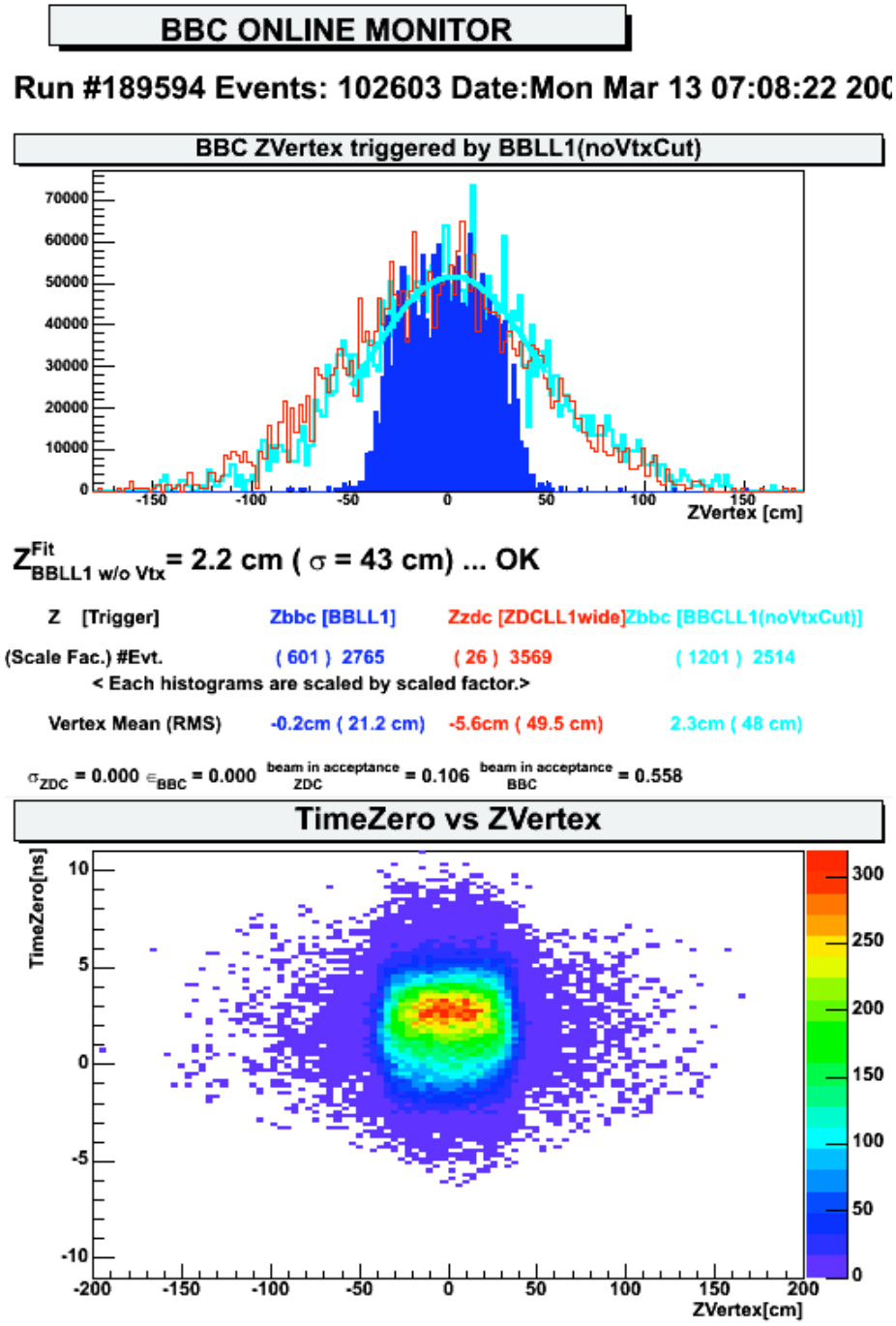
BBC Hits

- Much improved from last week
- None of the wings observed
- Distribution nice and narrow
- Comparable in every respect, perhaps a bit narrower than Run-5

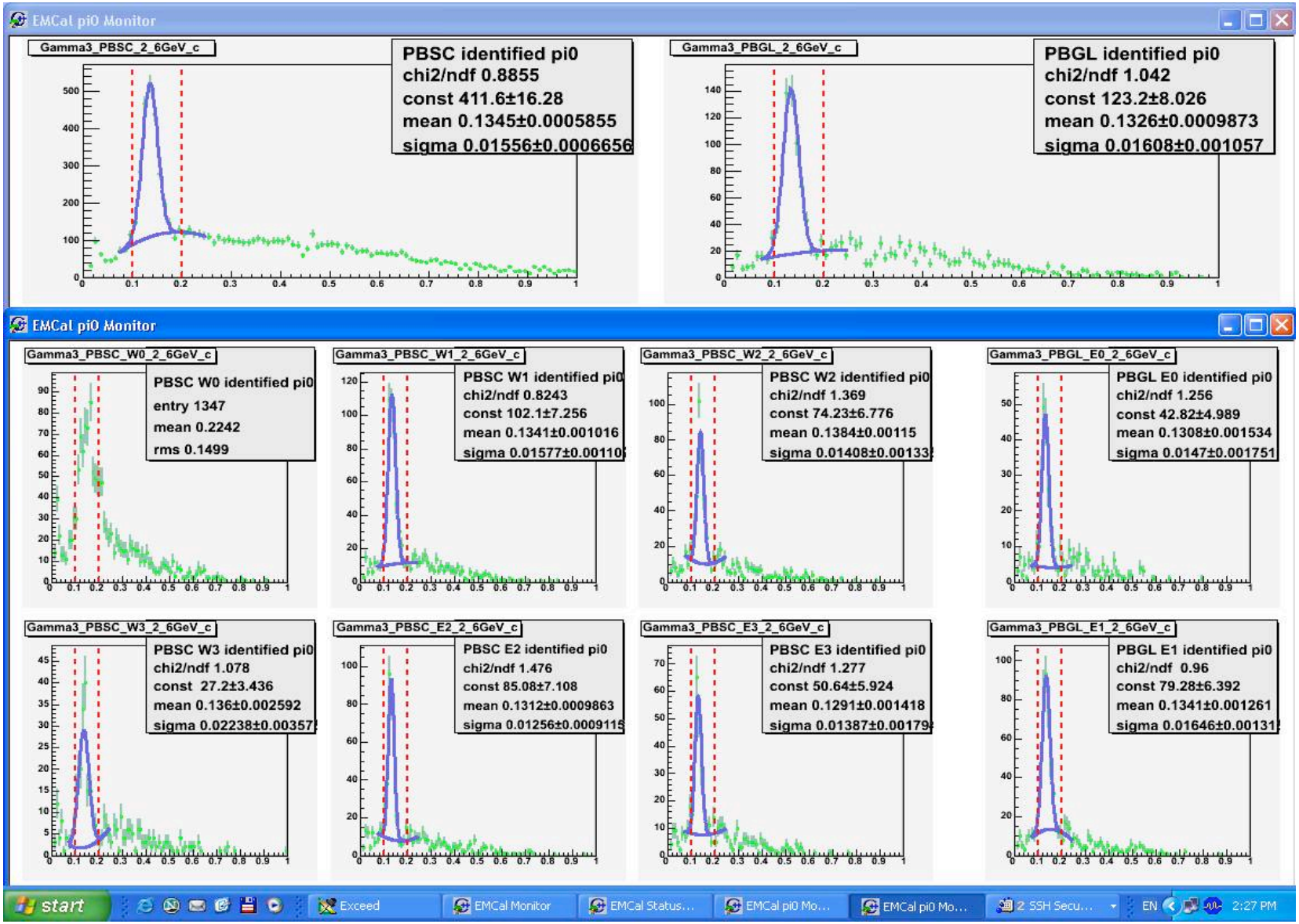


Zvtx Distribution

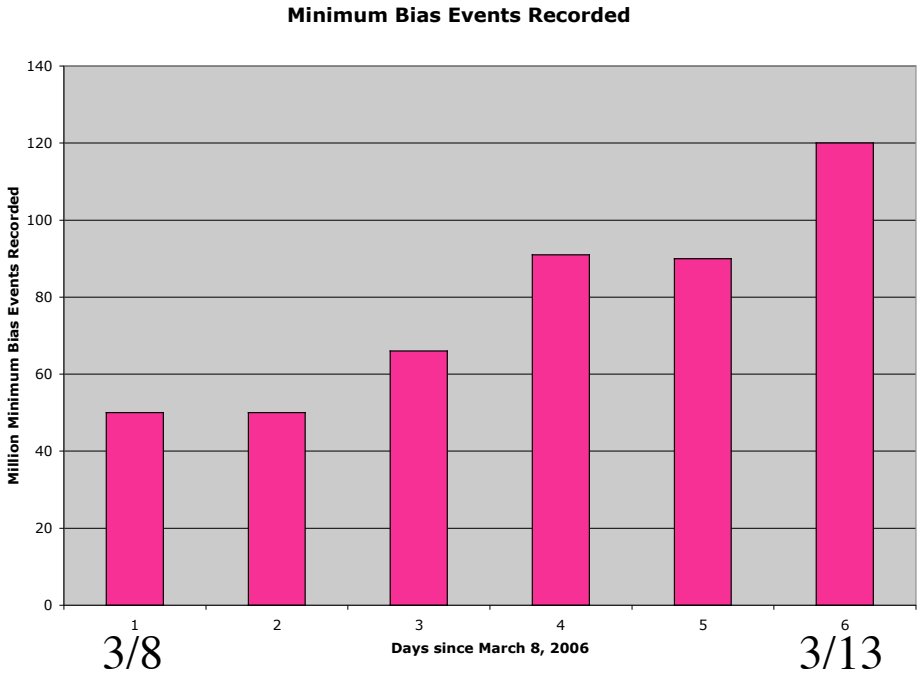
- Z vtx distribution looks good and centered
- ZDCLL1/BBLL1 ratio now exactly as that of Run-5
- Have confidence now that we are doing every thing correct

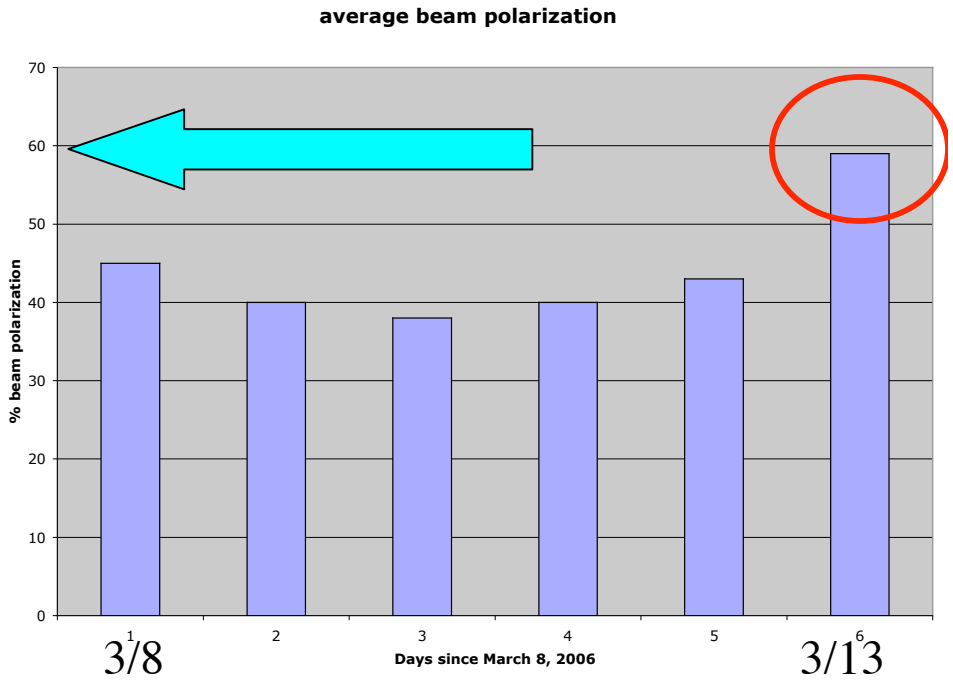


Almost Online π^0 reconstruction



Data collected so far….





410 M minbias events written to disk typical L~ 0.3 - 1 x 10^{31} /sec/cm^2

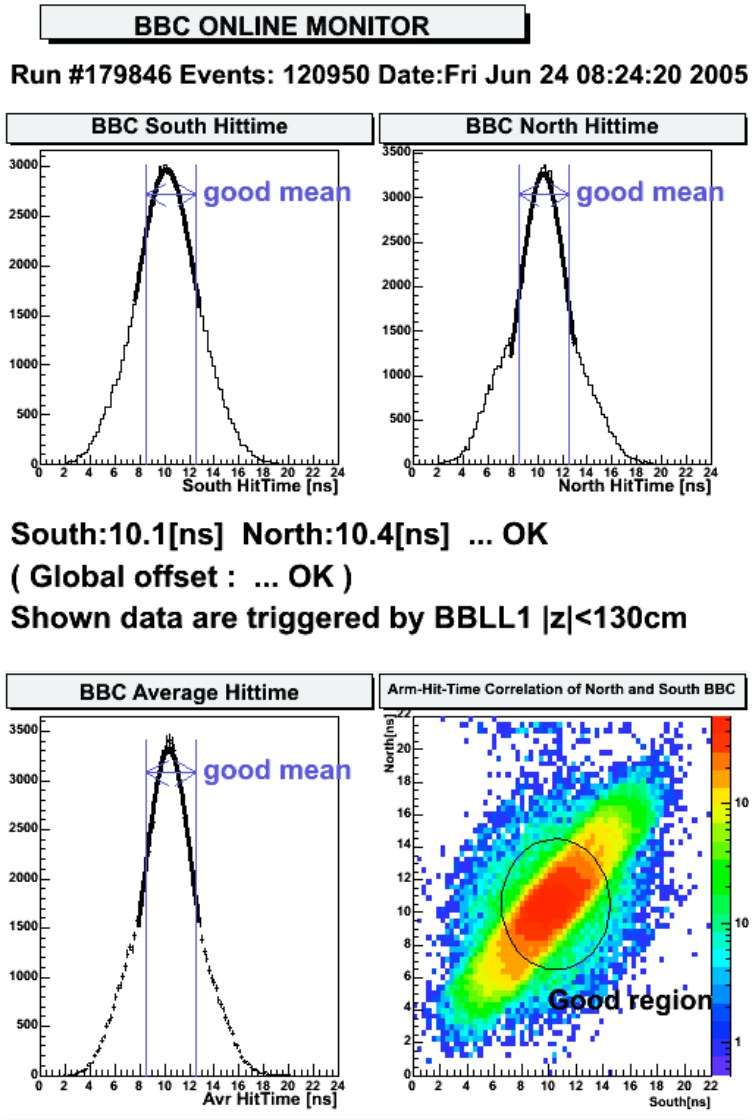
Average polarization above 40% so far… as promised in the first week

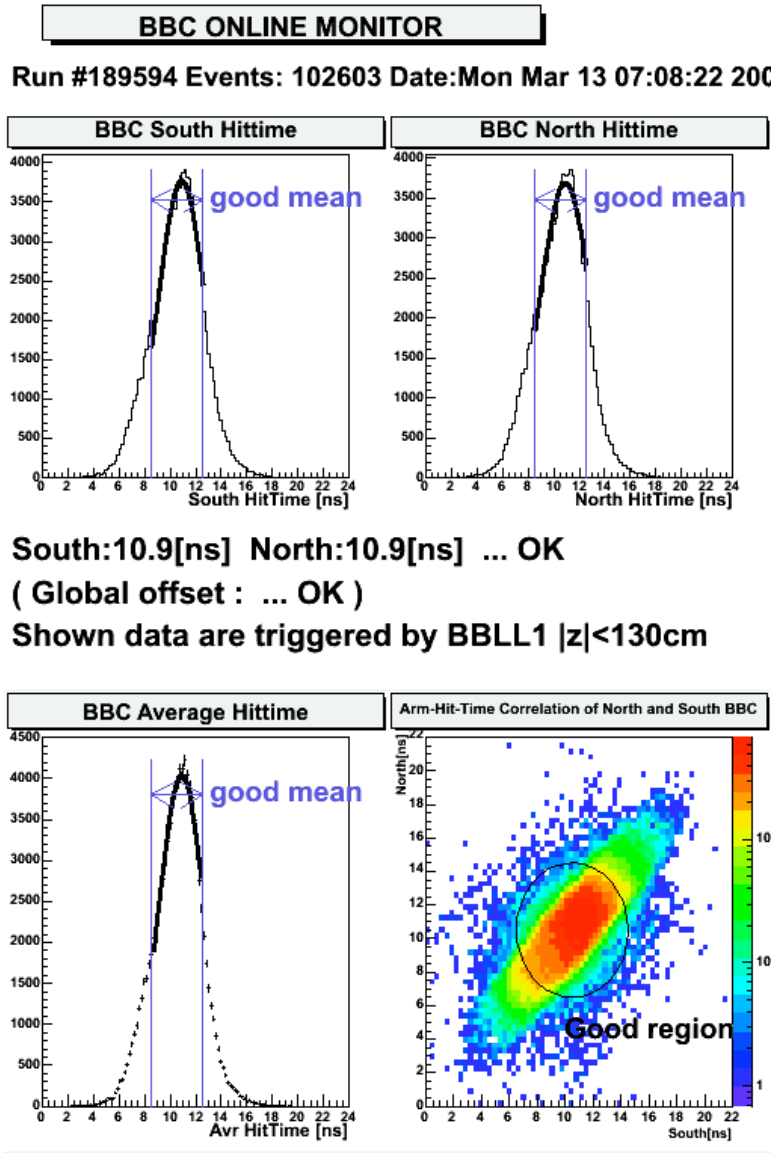
PHENIX looks forward to smooth running
with

high polarization <60%>
and highest possible luminosity!

My understanding

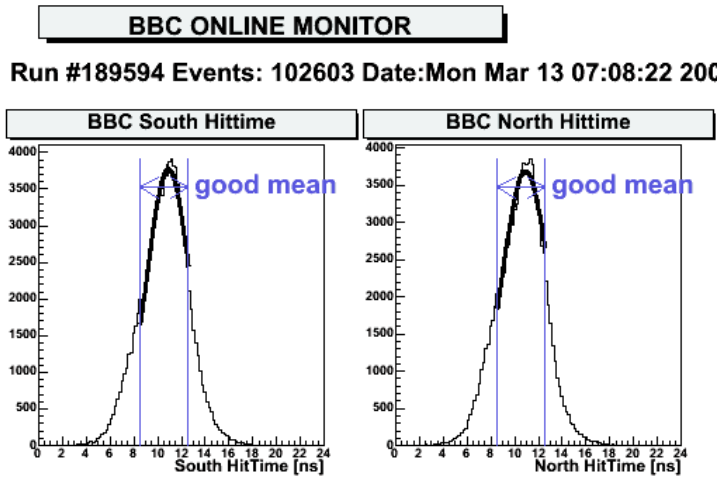
BBC timing Run5 vs. Run-6: QP off



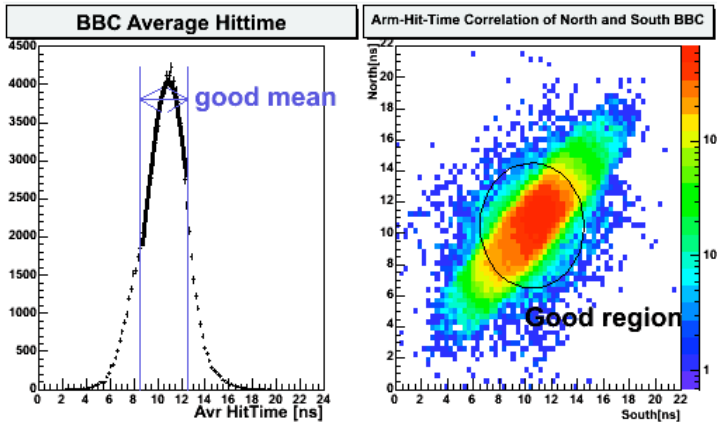


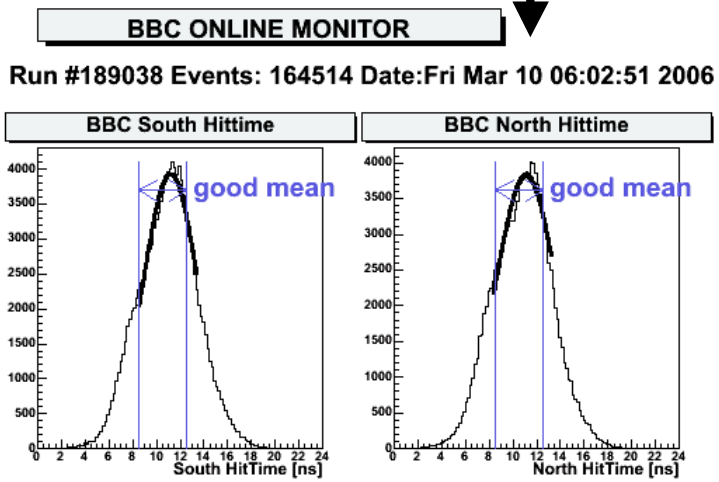
My understanding

BBC timing Run-6 QP-off/on

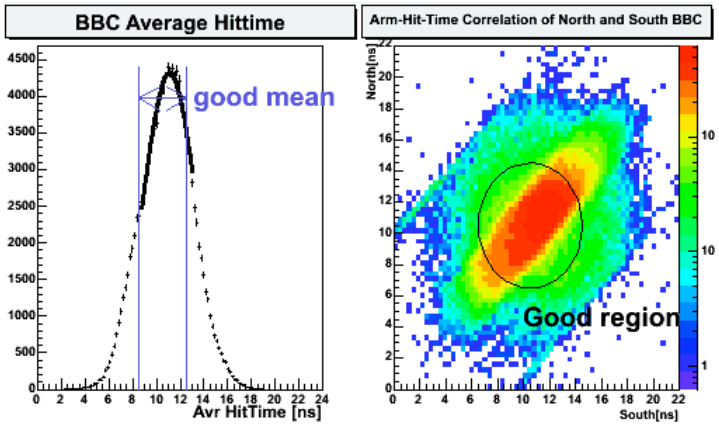


South:10.9[ns] North:10.9[ns] ... OK
(Global offset : ... OK)
Shown data are triggered by BBLL1 |z|<130cm

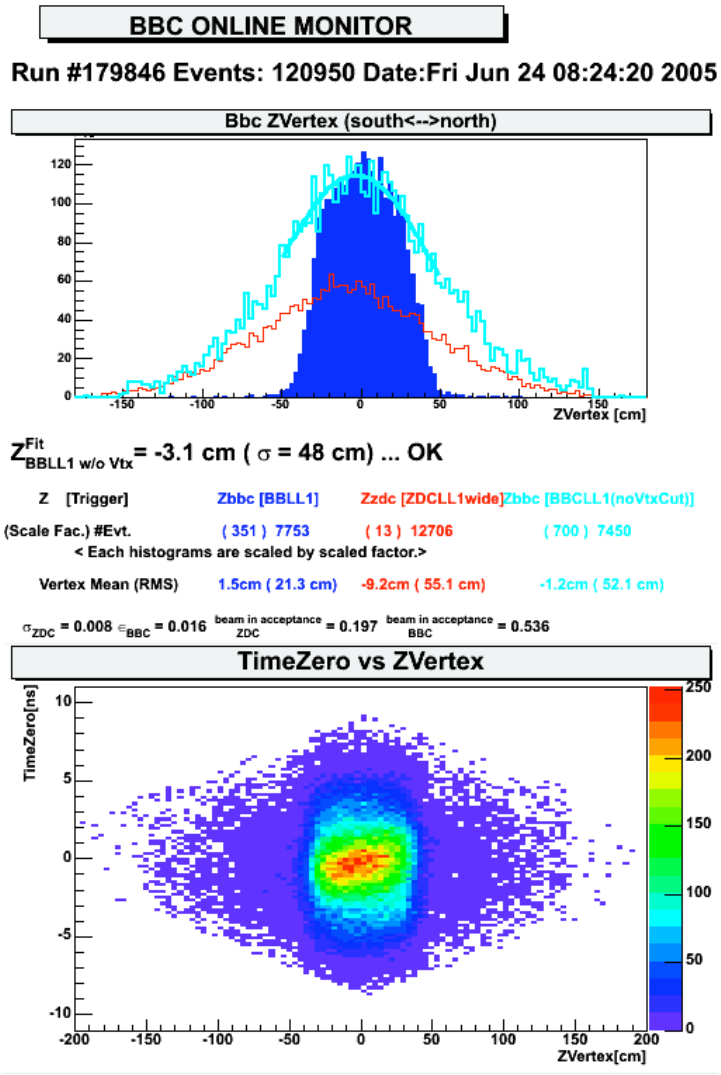


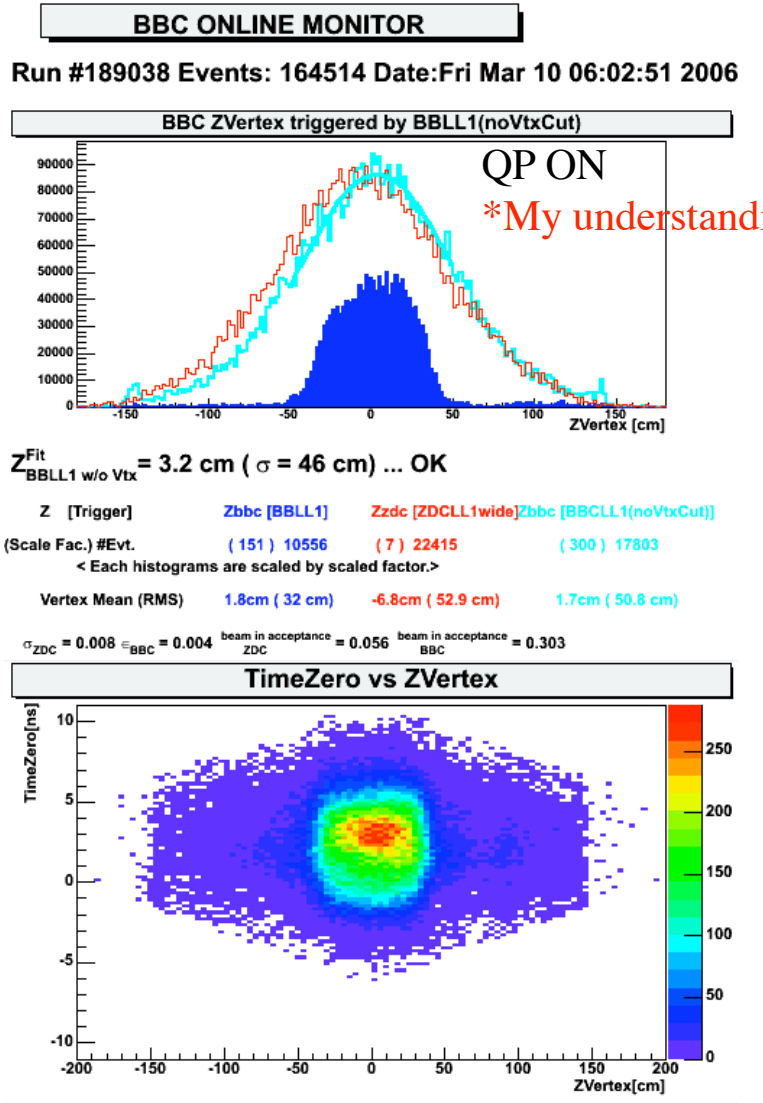


South:11.1[ns] North:11.1[ns] ... OK
(Global offset : ... OK)
Shown data are triggered by BBLL1 |z|<130cm

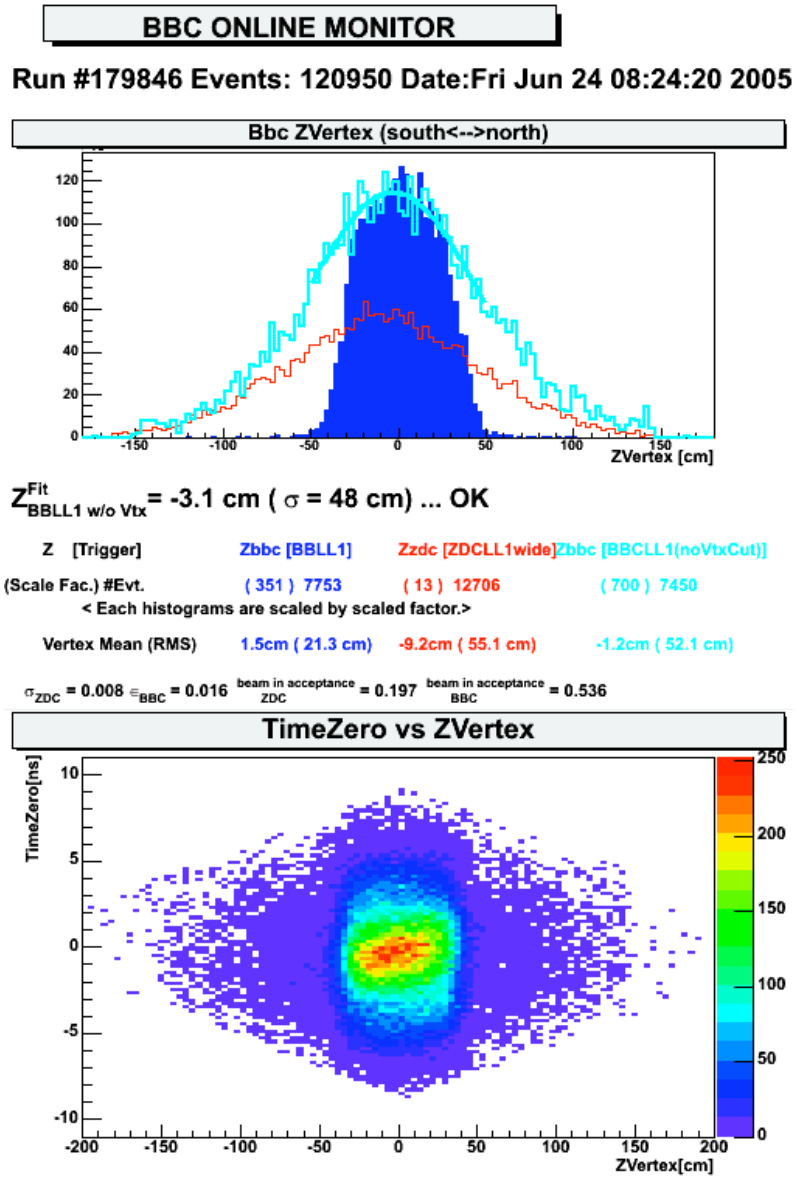


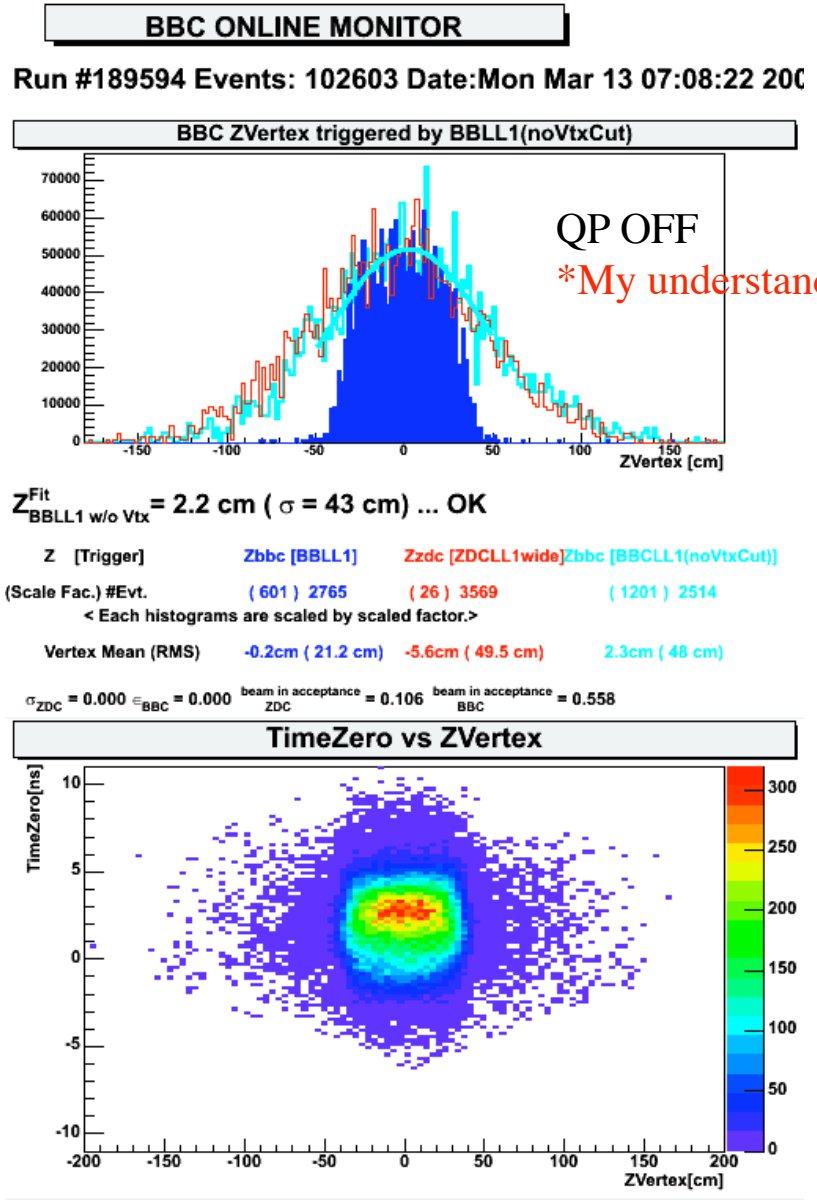
Run-5 vs. Run-6 QP ON*





Run-5 vs. Run-6 vtx QP Off*





Run-7 Discussions

- No serious discussions have occurred recently about the Run-7 species
  - **WHY NOW?**
  - The recommendations for species options annually comes from Physics Working Groups and the Executive Council makes the final recommendation to the Spokesperson: A process that takes several weeks

- The general PHENIX strategy is the accumulate data HI and pp comparison so that there is equivalence in the nucleon-equivalent data sets, modulo, enough extra time is allowed for proton beam polarization development

- **We have missed a large Au-Au data set in Run-6, PAC was also very supportive of this set, so I assume a 34 week run in Run-7 will naturally a significant Au-Au component to it**

Run-7 Discussions

Table 2: The PHENIX Beam Use Proposal for Runs 6-10.

RUN	SPECIES	$\sqrt{s_{NN}}$ (GeV)	PHYSICS WEEKS	$\int \mathcal{L}dt$ (recorded)	p+p Equivalent
6	Au+Au	200	13	1 nb^{-1}	40 pb^{-1}
	p+p	200	4	7 pb^{-1}	7 pb^{-1}
	p+p	62.4	2	0.6 pb^{-1}	0.6 pb^{-1}
	p+p	22.5	0.5	4 nb^{-1}	4 nb^{-1}
	p+p	500	1	NA	NA
7	d+Au	200	10	28 nb^{-1}	11 pb^{-1}
	p+p	200	15	57 pb^{-1}	57 pb^{-1}
8	Au+Au	200	15	1.5 nb^{-1}	60 pb^{-1}
	p+p	200	10	52 pb^{-1}	52 pb^{-1}
9	TBD	200	10		
	p+p	200	5	22 pb^{-1}	22 pb^{-1}
	p+p	500	10		
10	U+U?	200	15		
	p+p	500	10		

Without discussions with Phenix Management

My present guesses…

- If 34 weeks of cryogenic operations are allowed: PHENIX will ask for a combination of
  - A long Au-Au run + a short polarized proton run
  - **As long as polarized proton program is not fully developed, PHENIX will request short development periods of proton-proton collisions**

- The Run-7 proton+proton running may have a significant component of development for 500 GeV CM operation